

IN THE CLAIMS

This is a complete and current listing of the claims, marked with status identifiers in parentheses. The following listing of claims will replace all prior versions and listings of claims in the application.

Claims

1. (Previously Presented) A light emitting diode including a substrate, a N-type semiconductor layer, an active layer for generating light, and a P-type semiconductor layer, the light emitting diode comprising:
 - a first exposed region formed by etching the active layer and the P-type semiconductor layer to expose at least a part of the N-type semiconductor layer;
 - a first ohmic electrode formed on the first exposed layer;
 - a second ohmic electrode formed on the P-type semiconductor layer and having an opening at least a part of said P-type semiconductor layer having a second exposed region through said opening; and
 - said at least a part of P-type semiconductor layer being provided with an ultra-fine prominence and depression structure.
2. (Previously Presented) The light emitting diode as claimed in claim 1, wherein at least a part of the first exposed region excepting a portion having the first ohmic electrode has an ultra-fine prominence and depression structure.
3. (Previously Presented) A light emitting diode including a substrate, a N-type semiconductor layer, an active layer for generating light, a P-type semiconductor layer, a transparency metal (electrode), and a metal pad for wire bonding the light emitting diode comprising:

a first exposed region formed by etching the active layer and the P-type semiconductor layer to expose at least a part of the N-type semiconductor layer;
a first ohmic electrode formed on the first exposed layer; and
at least a part of said first exposed region excepting a portion having the first ohmic electrode being provided with an ultra-fine prominence and depression structure.

4. (Currently Amended) The light emitting diode as claimed in ~~any one of~~ claims 1—3, wherein the P-type semiconductor layer is GaN doped with Mg the N-type semiconductor layer is GaN doped with Si, and the active layer is GaN.
5. (Currently Amended) The light emitting diode as claimed in ~~any one of~~ claims 1—3, wherein the ultra-fine prominence and depression structure is a cluster of cylinder type prominence and depression elements.
6. (Previously Presented) The light emitting diode as claimed in claim 5, wherein the cylinder type prominence and depression element is a cone type, a column type, or a column type having a depressed upper end.
7. (Previously Presented) The light emitting diode as claimed in claim 5, wherein a width of the cylinder type prominence and depression element is $0.005 \sim 3 \mu\text{m}$, and a height is $0.1 \sim 1 \mu\text{m}$.
- 8 (Previously Presented) The light emitting diode as claimed in claim 5, wherein a width of the cylinder type prominence and depression element is $0.01 \sim 0.5 \mu\text{m}$, and a height is $0.2 \sim 0.7 \mu\text{m}$.
9. (Previously Presented) The light emitting diode as claimed in claim 5, wherein a width of the cylinder type prominence and depression element is $0.01 \sim 2$ times larger than a peak wavelength of the light emitting diode, and a height is $0.5 \sim 10$ times larger than the peak

wavelength.

10. (Previously Presented) The light emitting diode as claimed in claim 5, wherein a width of the cylinder type prominence and depression element is 0.1 ~ 1 times larger than a peak wavelength of the light emitting diode, and a height is 1 ~ 3 times larger than the peak wavelength.
11. (Previously Presented) The light emitting diode as claimed in claim 5, wherein a density of the cylinder type prominence and depression elements is $1 \sim 10000/\mu\text{m}^2$.
12. (Previously Presented) The light emitting diode as claimed in claim 5, wherein a density of the cylinder type prominence and depression elements is $50 \sim 500/\mu\text{m}^2$.
13. (Previously Presented) The light emitting diode as claimed in claim 5, wherein the cylinder type prominence and depression element is formed by depositing a metal or silicon compound on the semiconductor layer, heat-treating the deposited metal or silicon compound, and dry- or wet-etching the deposited metal or silicon compound.
14. (Previously Presented) The light emitting diode as claimed in claim 13, wherein the metal is any one or combinations selected from a group of Ag, Al, Au, Cr, In, Ni, Pd, Pt and Ti.
15. (Previously Presented) The light emitting diode as claimed in claim 13, wherein a temperature for the heat-treating is ranged from 90 °C to 400 °C.
16. (Previously Presented) The light emitting diode as claimed in claim 15, wherein the cylinder type prominence and depression element is formed by selectivity, said selectivity being partly changed due to a reaction of the metal and the semiconductor at time of etching.